

Appl. No. 09/701,791  
Amdt. Dated 12/10/2004  
Response to Office action dated 06/16/2004

### **REMARKS**

Claims 1- 3, and 7-16 are pending. Claim 1 has been amended. No new matter has been added.

#### ***Disclaimers Relating to Claim Interpretation and Prosecution History Estoppel***

Claim 1 has been amended, notwithstanding the belief that these claims were allowable. Except as specifically admitted below, no claim elements have been narrowed. Rather, cosmetic amendments have been made to the claims and to broaden them in view of the cited art. Claim 1 has been amended solely for the purpose of expediting the patent application process, and the amendments were not necessary for patentability.

Any reference herein to "the invention" is intended to refer to the specific claim or claims being addressed herein. The claims of this Application are intended to stand on their own and are not to be read in light of the prosecution history of any related or unrelated patent or patent application. Furthermore, no arguments in any prosecution history relate to any claim in this Application, except for arguments specifically directed to the claim.

#### ***Claim Rejections - 35 USC § 103***

The Examiner rejected claim 1 under 35 USC § 103 as obvious from Nakamura ("Recent Cements"; Concrete Products, Industry and Products No. 53, p. 42 – 53). The rejection is respectfully traversed.

To establish a *prima facie* case of obviousness, "the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination [. . .] must both be found in the prior art and not based on applicant's disclosure." *MPEP 706.02(j)*.

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Claim 1 recites "A method of manufacturing chemically prestressed components which comprises molding concretes formed by kneading a cement composition containing a cement and an expansive additive and curing the same underwater in a high temperature high pressure curing water at over 100°C."

The present application claims a "high temperature high pressure underwater curing" of a concrete molding product, which differs from a "high temperature high pressure steam curing (autoclave curing)" as illustrated in Nakamura.

In high temperature high pressure steam curing, steam is always present in the periphery of cement particles constructing concrete. Moreover, the curing body is subject to hydration in an airtight pressure resistant vessel. Autoclave curing is a technique for achieving a required strength of concrete utilizing a reaction between gaseous water molecules and cement minerals or aggregate minerals. It is assumed that a bond is formed between an aggregate and a cement hydrate. In the assumed reaction, a solid reaction is performed because a new substance is formed at a solid-gas interface through the reaction.

High temperature high pressure underwater curing has an advantage that, in an airtight pressure resistant vessel, concrete is cured wherein liquid water is always present at the periphery of cement particles constructing concrete. The liquid water is at a pressure higher than the saturated vapor pressure for the curing temperature. More specifically, a reaction mechanism is a "solution step", in which cement component is once solved in water and then cement hydrate is developed in a supersaturated condition.

High temperature high pressure steam curing is a technique which facilitates hydration by a hydrothermal reaction of cement, and quickly makes a concrete so as to have high-strength. In both curing methods the presence of water molecules near cement is essential. The most significant difference between the steam curing and the underwater curing is the probability that voids, inevitably formed by chemical shrinkage, are occupied by unhydrated cement are filled with water.

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With autoclave curing employing steam no structure can be developed in the voids. Autoclave curing results in large continuing voids. On the other hand, the high temperature high pressure underwater curing facilitates a continuous reaction in which pressurized liquid water continuously fills voids being formed through hydrate contraction. In this case, voids having water therein have uniform probability of being filled with hydrate. Thus, structure development is expected to be done more uniformly and average void size can be extremely reduced.

Since Nakamura, in combination with the prior art referenced in the specification does not teach each and every element of claim 1, claim 1 is patentable over the admitted prior art in view of Nakamura. Therefore, it is respectfully requested that the rejection be withdrawn and claim 1 be allowed to issue.

### *Conclusion*

It is submitted, however, that the independent and dependent claims include other significant and substantial recitations which are not disclosed in the cited references. Thus, the claims are also patentable for additional reasons. However, for economy and because agreement was reached with the Examiner as described above, the additional grounds for patentability are not set forth here.

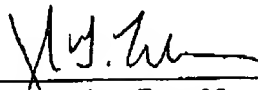
In view of all of the above, it is respectfully submitted that the present application is now in condition for allowance. Reconsideration and reexamination are respectfully requested and allowance at an early date is solicited.

The Examiner is invited to call the undersigned attorney to answer any questions or to discuss steps necessary for placing the application in condition for allowance.

Appl. No. 09/701,791  
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Respectfully submitted,

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